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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/537,802

08/09/2005

Ralph Nonninger

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THE NATH LAW GROUP  
112 South West Street  
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EXAMINER

GREENE, IVAN A

ART UNIT

PAPER NUMBER

1619

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/537,802	<b>Applicant(s)</b> NONNINGER ET AL.	
	<b>Examiner</b> IVAN GREENE	<b>Art Unit</b> 1619	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 26 November 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) 1-11, 26 and 27 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 12-15 is/are rejected.
- 7) ☒ Claim(s) 13 and 19 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>06/07/2005; 08/09/2005; and 04/25/2008</u> .                  | 6) <input type="checkbox"/> Other: _____                          |



## **DETAILED ACTION**

### ***Status of the claims***

Claims 1-27 are currently pending. Claims 1-11, 26 and 27 are withdrawn base upon a requirement for restriction, discussed below. Claims 12-25 are presented for examination on the merits.

### ***Restriction***

Applicant's election with traverse of group (II) in the reply filed on 11/26-2008 is acknowledged. The traversal is on the ground(s) that no search burden exists. This is not found persuasive because a search burden does exist as evidenced by the different classifications of groups (I) and (II).

The requirement is still deemed proper and is therefore made FINAL. Claims 1-11, 26 and 27 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected subject matter, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 11/26/2008.

### ***Information Disclosure Statement***

The information disclosure statement(s) submitted on 06/07/2005, 08/09/2005 and 04/25/2008 were filed before the mailing date of the first office action on the merits. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the Examiner.

***Priority***

The U.S. effective filing date has been determined to be 12/09/2002, the filing date of the document PCT/EP02/13942. No foreign priority has been claimed in the instant application.

***Objections***

Claims 13 and 19 are objected because they depend from claims that have been withdrawn. The claims should be rewritten in proper independent or dependent form.

***Rejections***

***Claim Rejections - 35 U.S.C. 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. **Claims 12-25 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.**
2. Claims 12, 13, 18 and 19 recite "so-called core" and "so-called shell", it is unclear what is meant by "so-called" and as such the claims are indefinite.
3. Regarding claims 12, 18, 20, 23 and 24, the phrase "preferably" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

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4. Further regarding claim 24, the phrase "in particular" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

5. Claim 17 recites the limitation "the metal" in line 2. There is insufficient antecedent basis for this limitation in the claim.

6. A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. See MPEP § 2173.05(c). Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949). In the present instance, claim 23 recites the broad recitation --between 5 nm and 50 nm--, and the claim also recites --between 5 nm and 20 nm-- which is the narrower statement of the range/limitation.

7. Similarly to claim 23, claim 24 recites the broad recitation --between 5 nm and 100 nm--, and the claim also recites --between 10 nm and 50 nm-- which is

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the narrower statement of the range/limitation and further recites the even narrower statement of the range/limitation --between 20 nm and 45 nm--.

8. Claims 20, 21 and 22 are rejected because they depend from rejected claims and do nothing to correct the indefiniteness of those claims.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

**1. Claims 12-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oldenburg (US 2001/0002275 A1) in view of Lesniak et al. (US 6,541,039).**

### **Applicants Claims**

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Applicant claims a core/shell particle having a core and a shell wherein the core comprises nanoscale particles of an inorganic material having a particle size of less than 100 nanometers and wherein the shell comprises at least one metal.

### **Determination of the scope and content of the prior art**

#### **(MPEP 2141.01)**

Oldenburg et al. teach particulate composition(s) in which the particles are homogenous in size and are comprised of nonconducting inner layer that is surrounded by an electrically conducting material (abstract). Oldenburg et al further teach their invention relates to a general method for the production of nanoshell composites ([0017]). Oldenburg et al. further teach the compositions of the present invention are particles that have at least two layers...At least one layer is immediately adjacent to and surrounds another layer...The innermost layer is said to be a core...A layer surrounds the core is said to be the shell layer...The shell layer is metal-like in that it can conduct electricity and is made of a metal or metal-like material ([0020]). Oldenburg et al. further teach it is contemplated that [the] inner layer be nonconducting and be made of dielectric materials and semiconductors, suitable materials are silicon dioxide, titanium dioxide or particles made of CdSe, CdS or GaAs ([0021], claim 18). Oldenburg et al. further teach in spherical embodiments, particles have a homogenous radius that can range from approximately 1 to 10 nanometers to several microns depending upon the desired maximum absorbance ([0023], claim 20). Oldenburg et al. further teach in the present embodiments, at least one nonconducting layer



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is surrounded by a layer that is made of a conducting material...suitable metals include noble metals and coinage metals...particularly well suited metals are gold, silver, copper, platinum, palladium, lead, and iron ([0025], claim 3). Oldenburg et al. further teach the example with silica nanoparticles and gold colloid ([0056]). Oldenburg et al. further teach the method of Stober (1968) was used to produce monodisperse silicon dioxide particle cores ([0058], [0060]). Oldenburg et al. further teach the mixtures of their invention can be incorporated into polymers, glasses, paints, epoxies, or other coating matrices by standard methods well known in the art ([0075]).

Lesniak et al. teach nanoscale particles comprising an iron oxide core and at least two shells surrounding said core (abstract). Lesniak et al. further teach preferably the substances for the core consists of pure iron oxide, particularly magnetite or maghemite (col. 3, lines 42-43).

### **Ascertainment of the difference between the prior art and the claims**

#### **(MPEP 2141.02)**

The difference between the rejected claims and the teachings of Oldenburg et al. is that Oldenburg et al. do not expressly teach a magnetic core specifically a magnetite core. This deficiency in magnetite core is cured by the teachings of Lesniak et al.

### **Finding of prima facie obviousness**

#### **Rationale and Motivation (MPEP 2142-2143)**

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It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to combine the teachings of Lesniak et al. and produce the instantly claimed invention because both Oldenburg et al. and Lesniak et al. teach nanoparticle core/shell compositions. It is *prima facie* obvious to combine two compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition to be used for the very same purpose, i.e. a nanoscale core/shell nanoparticle. See MPEP 2144.06. One of ordinary skill in the art would have been motivated to combine Oldenburg et al. with Lesniak et al. because the cores taught by Lesniak et al. would provide for particle which could be manipulate under the influence of a magnet.

In light of the forgoing discussion, the Examiner concludes that the subject matter defined by the instant claims would have been obvious within the meaning of 35 USC 103(a).

From the teachings of the references, it is apparent that one of ordinary skill in the art would have had a reasonable expectation of success in producing the claimed invention. Therefore, the invention as a whole would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made, as evidenced by the references, especially in the absence of evidence to the contrary.

#### ***Nonstatutory Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude”

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granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

**1. Claims 12 and 17 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 26 and 17 of copending Application No. 10/553,910 (hereafter '910) in view of Oldenburg (US 2001/0002275 A1).**

Instant claim 12 recites a core/shell particle having a so-called core and at least one so-called shell, the core comprising nanoscale particles of an inorganic material having a particle size of less than 100 nm, the shell being at least one metal, and the core/shell particles being present substantially, preferably completely, as nonagglomerated particles. Instant claim 17 recites a core/shell particle characterized in that the metal is silver or copper.

Copending '910 claim 25 recites the composite material as claimed in claim 24, characterized in that the substantially spherical particles are what are

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known as core/shell particles. Copending '910 claim 26 recites the composite material as claimed in claim 25, characterized in that the core is an inorganic oxide, preferably  $\text{Al}_2\text{O}_3$ ,  $\text{ZrO}_2$ ,  $\text{TiO}_2$  and/or  $\text{Fe}_2\text{O}_3$ . Copending '910 claim 27 recites the composite material as claimed in claim 25 or claim 26, characterized in that the shell is metallic, preferably formed from Cu, Ag, Au, Pt or Pd or an alloy of these metals.

Oldenburg et al. teach core/shell nanoparticles comprising an inorganic oxide core and a metal shell which are from approximately 1 to 10 nanometers to several microns in size, as discussed above ([0023], claim 20).

The difference between the rejected claims and the claims of '910 is that the claim of '910 do not expressly teach the size of the claimed nanoparticles as in the instantly rejected claims. This deficiency in the size of the core/shell nanoparticles is cured by the teachings of Oldenburg et al.

It would have been prima facie obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the claims of '910 and produce the instantly claimed invention because both Oldenburg et al. and '910 teach nanoparticle core/shell compositions. It is prima facie obvious to combine two compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition to be used for the very same purpose, i.e. a nanoscale core/shell nanoparticle. The skilled artisan would have been motivated to modify the claims of '910 because, as taught by Oldenburg et al., the absorbance of the nanoparticulate material could be adjusted by changing the size of the core/shell nanoparticles.

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This is a provisional obviousness-type double patenting rejection.

### ***Conclusion***

Claims 13 and 19 are objected; Claims 12, 14-16 and 23-25 are rejected under 35 U.S.C. 112, second paragraph; Claims 12-25 are rejected under 35 U.S.C. 103(a); Claims 12 and 17 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting over copending 10/553,910.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to IVAN GREENE whose telephone number is (571)270-5868. The examiner can normally be reached on Monday through Thursday 7AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Johann Richter can be reached on (571) 272-0646. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

IVAN GREENE  
Examiner, Art Unit 1619

/PORFIRIO NAZARIO GONZALEZ/  
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